Zeya Luo, Nicole Lehner, Min Feng, Emily Williamson,
Professor Suresh Sundaram
9 December 2018
Marketing Research Data Project

1. *Perform the appropriate descriptive analysis for each question on the questionnaire and interpret it. If you made any corrections/changes to the SPSS data file (in terms of the variable type, values, etc.), please outline the changes.*

As we went through the data, we noticed that some of the variables had missing data; these variables included: "Which newscast do you watch most frequently?", "On average, how many hours per day do you spend surfing the Internet?", "What type of website do you spend the most time on, when you are surfing the Internet?", "Thinking again of the restaurant just described and remembering that drinks, appetizers, entrées, and desserts are priced separately (a la carte), what would you expect an average evening meal entrée item alone to be priced?" and "What type of a home do you currently live in?". We also went through all of the data and made sure that each variable had the correct measurement scale, which can be seen in the chart below alongside the variable number and name, and the appropriate central tendency and measure of variation.

Variable Number	**Variable Name**	**Measurement Scale**	**Central Tendency**	**Measure of Variation**
1	eatrest	Nominal	Mode	Frequency Distribution
2	totspent	Scale	Mean	Standard Deviation
3	watchtv	Nominal	Mode	Frequency Distribution
4	tvprogram	Nominal	Mode	Frequency Distribution
5	tvnewsviewer	Nominal	Mode	Frequency Distribution
6	newstime	Nominal	Mode	Frequency Distribution
7	surfnet	Nominal	Mode	Frequency Distribution
8	websitevisit	Nominal	Mode	Frequency Distribution
9	smartphone	Nominal	Mode	Frequency Distribution
10	location	Scale	Mean	Standard Deviation
11	distance	Scale	Mean	Standard Deviation

12	wine	Scale	Mean	Standard Deviation
13	chef	Scale	Mean	Standard Deviation
14	waitstaff	Scale	Mean	Standard Deviation
15	unique	Scale	Mean	Standard Deviation
16	local	Scale	Mean	Standard Deviation
17	attractive	Scale	Mean	Standard Deviation
18	music	Scale	Mean	Standard Deviation
19	parking	Scale	Mean	Standard Deviation
20	likely	Scale	Mean	Standard Deviation
21	avprice	Scale	Mean	Standard Deviation
22	birthyear	Scale	Mean	Standard Deviation
23	education	Nominal	Mode	Frequency Distribution
24	maritalstatus	Nominal	Mode	Standard Deviation
25	hometype	Nominal	Mode	Standard Deviation
26	familysize	Scale	Mean	Frequency Distribution
27	zipcode	Nominal	Mode	Standard Deviation
28	income	Nominal	Mode	Standard Deviation
29	gender	Nominal	Mode	Standard Deviation
30	age	Scale	Mean	Frequency Distribution

The chart below shows the original measure listed in SPSS, as well as what we changed it to and why we chose the final measure.

Variable Number	**Original Measure**	**Final Measure**
1	Scale	Changed to Nominal because it is a basic scale providing only a label, yes or no.

2	Scale	Kept as Scale because it is a ratio variable. We know this because there is a true natural zero.
3	Nominal	Kept as Nominal because because it is a basic scale providing only a label, yes or no.
4	Scale	Changed to Nominal because it is a basic scale providing only a label, sports, comedy, drama, talk shows or other.
5	Scale	Changed to Nominal because it is a basic scale providing only a label, yes or no.
6	Scale	Changed to Nominal because it is a basic scale providing only a label, of 7:00 am News, Noon News, 6:00 pm News, or 10:00 pm News.
7	Scale	Changed to Nominal because it is a basic scale providing only a label, Less Than 1 Hour, 1 – 2 Hours, 3 – 5 Hours, 6 – 10 Hours, More Than 10 Hours, or I Do Not Engage in this Activity.
8	Ordinal	Changed to Nominal Less because it is a basic scale providing only a label, News (CNN.com, FoxNews.com, etc.), Sports (ESPN.com, NFL.com, etc.), Shopping (Amazon.com, Buy.com, etc.), Social Media (Facebook, Twitter, etc.) or Other.
9	Scale	Changed to Nominal because it is a basic scale providing only a label, yes or no.
10	Scale	Kept as Scale, as it is interval, and we are asking respondents to give a value to characteristics of a restaurant, which will allow us to see an absolute difference between scales.
11	Scale	Kept as Scale, as it is interval, as we are asking respondents to give a value to characteristics of a restaurant, which will allow us to see an absolute difference between scales.
12	Ordinal	Changed to Scale, as it is interval, as we are asking respondents to give a value to characteristics of a restaurant, which will allow us to see an absolute difference between scales.
13	Scale	Kept as Scale, as it is interval, as we are asking respondents to give a value to characteristics of a restaurant, which will allow us to see an absolute difference between scales.
14	Scale	Kept as Scale, as it is interval, as we are asking respondents to give a value to characteristics of a restaurant, which will allow us to see an absolute difference between scales.

15	Nominal	Changed to Scale,as it is interval, as we are asking respondents to give a value to characteristics of a restaurant, which will allow us to see an absolute difference between scales.
16	Nominal	Changed to Scale, as it is interval, as we are asking respondents to give a value to characteristics of a restaurant, which will allow us to see an absolute difference between scales.
17	Nominal	Changed to Scale, as it is interval, as we are asking respondents to give a value to characteristics of a restaurant, which will allow us to see an absolute difference between scales.
18	Scale	Kept as Scale, as it is interval, as we are asking respondents to give a value to characteristics of a restaurant, which will allow us to see an absolute difference between scales.
19	Scale	Kept as Scale, as it is interval, as we are asking respondents to give a value to characteristics of a restaurant, which will allow us to see an absolute difference between scales.

20	Ordinal	Changed to Scale, as it is an interval scale. We are asking respondents to state how likely they are to patronize a restaurant. The responses have an equal distance between them which will allow us to see an absolute difference between scales.
21	Scale	Kept as Scale, as this is a ratio scale. We know this because there is a true natural zero.
22	Scale	Kept as Scale, as this is a ratio scale. We know this because there is an absolute difference as well as a natural zero.
23	Scale	Changed to Nominal because it is a basic scale providing only a label, Less Than High School, Some High School, High School Graduate, Some College (No Degree), Associate Degree, Bachelor’s Degree, Master’s Degree or Doctorate Degree
24	Scale	Changed to Nominal because it is a basic scale providing only a label, single, married or other.
25	Scale	Changed to Nominal because it is a basic scale providing only a label, Rental Apartment, Condominium, Townhome, or Single Family Home.
26	Ordinal	Changed to Scale because it is a ratio scale. We know this because there is an absolute zero.

27	Scale	Changed to Nominal, because it is a basic scale providing only a label, North, East, West or South.
28	Scale	Changed to Nominal because it is a basic scale providing only a label, < $15,000, $15,000-$24,999, $25,000-$49,999, $50,000-$74,999, $75,000-$99,999, $100,000-$149,999 or $150,000+
29	Scale	Changed to Nominal because it is a basic scale providing only a label, male or female.
30	Scale	Kept as Scale, as it is a ratio scale. We know this because there is a natural zero.

2. *In a magazine titled "Restaurant Industry Trends," Chef Gaston read that Men and Women are different in terms of:*

a. the amount they spend, on a monthly basis, on lunch or dinner at restaurants

Levene's Test:

Null Hypothesis: H_0: $\sigma_1^2 = \sigma_2^2$; The variances are the same between male and female respondents (equal variances assumed).

Alternative Hypothesis: H_a: $\sigma_1^2 \neq \sigma_2^2$; There is a significant difference in the rating variances of gender and average spending amount on a monthly basis, on lunch or dinner.

Independent Sample T-test for Equality of Means

Null Hypothesis: $H_0: \mu_1 = \mu_2$; Variances are the same between male and females for the average spending amount on a monthly basis on lunch or dinner.

Alternative Hypothesis: $H_a: \mu_1 \neq \mu_2$; The average spending amount on a monthly basis on lunch or dinner have a difference in terms of gender.

T-Test

Group Statistics

	What is your gender?	N	Mean	Std. Deviation	Std. Error Mean
On average, on a monthly basis, how much do you spend on lunch or dinner at restaurants?	Male	188	$148.3404	$93.26720	$6.80221
	Female	169	$169.9941	$86.79159	$6.67628

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
On average, on a monthly basis, how much do you spend on lunch or dinner at restaurants?	Equal variances assumed	1.57	.211	-2.263	355	.024	-$21.6537	$9.568	-$40.470	-$2.837
	Equal variances not assumed			-2.272	354.6	.024	-$21.6537	$9.531	-$40.398	-$2.909

The significant level of variances is 0.211 is greater than 0.05, therefore, we do not reject the null hypothesis for Levene's Test, and we conclude that equal variances are assumed for gender and average spending amount on a monthly basis on lunch or dinner. Next, we looked at the significance for equal variances assumed, which is 0.024. Since it is less than 0.05, we reject the null hypothesis and make the conclusion that the average spending amount on a monthly basis on lunch or dinner have a difference in terms of gender. Referencing the T-Test chart, we see that females ($169.99) are likely to spend more than males ($148.34), which means that the magazine's claim does not apply to Chef Gaston's restaurant. As a result, we recommend that Chef Gaston focuses on the female clientele as they spend more money in his restaurant.

b. their expected average price for evening entrée item alone

Levene's Test:

Null Hypothesis: H_0: $\sigma_1^2 = \sigma_2^2$, The variances are the same between male and female respondents (equal variances assumed).

Alternative Hypothesis: H_a: $\sigma_1^2 \neq \sigma_2^2$, There is a significant difference in the rating variances of gender and average spending amount on evening entrée item alone.

Independent Sample T-test for Equality of Means

Null Hypothesis: $H_0: \mu_1 = \mu_2$, There is no difference between gender difference and expected average price for an evening entree item.

Alternative Hypothesis: $H_a: \mu_1 \neq \mu_2$, There is a difference between gender difference and expected average price for an evening entree item.

T-Test

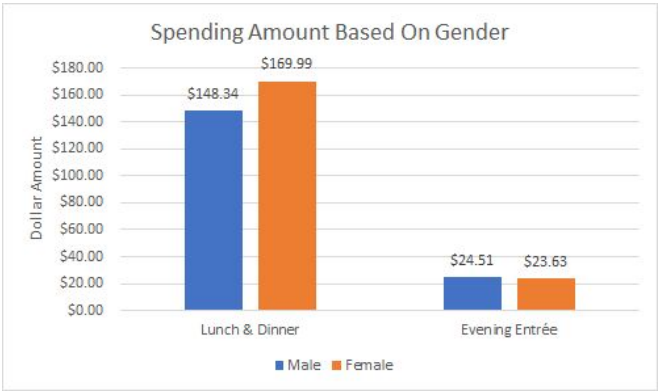
Group Statistics

	What is your gender?	N	Mean	Std. Deviation	Std. Error Mean
What would you expect an average evening meal entree item alone to be priced?	Male	161	$24.5093	$10.45952	$0.82433
	Female	144	$23.6319	$9.72255	$0.81021

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
What would you expect an average evening meal entree item alone to be priced?	Equal variances assumed	1.393	.239	.756	303	.450	$0.877	$1.16056	-$1.4064	$3.16115
	Equal variances not assumed			.759	303	.448	$0.877	$1.15584	-$1.3971	$3.15187

The significant level of variances is 0.239, which is greater than 0.05. Therefore, we do not reject the null hypothesis for Levene's Test, and we conclude that equal variances are assumed for gender and average spending amount on an evening entrée item alone. Next, we look at the significance for equal variances assumed, which is 0.450. Since it is greater than 0.05, we do not reject the null hypothesis and make the conclusion that there is no relationship between gender difference and expected average price for evening entree item. In conclusion, the average price for evening entree items has no difference in terms of gender, which means that the magazine's claim does not apply to Chef Gaston's restaurant. As a result, we recommend that he advertises to both males and females in the same way.



While reading this article, Chef Gaston also remembers an article a few months ago in the Wall Street Journal, which suggested that people who watch television and those who don't are different in terms of:

c. *The importance attached to attractive décor*

Levene's Test:

Null Hypothesis: H_0: $\sigma_1^2 = \sigma_2^2$, The variances are the same for people who are watching television or are not (equal variances assumed).

Alternative Hypothesis: H_a: $\sigma_1^2 \neq \sigma_2^2$, There is a significant difference in the rating variances of those watching television or not and the importance attached to attractive décor.

Independent Sample T-test for Equality of Means

Null Hypothesis: H_0:$\mu_1 = \mu_2$, There is no difference between watching television or not, and the importance attached to attractive décor.

Alternative Hypothesis: H_a:$\mu_1 \neq \mu_2$, There is a difference between watching television or not, and the importance attached to attractive décor.

T-Test

Group Statistics

	Would you describe yourself as one who watches television?	N	Mean	Std. Deviation	Std. Error Mean
Attractive Decor	Yes	342	3.65	1.516	.082
	No	15	4.27	1.387	.358

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Attractive Decor	Equal variances assumed	3.435	.065	-1.535	355	.126	-.612	.399	-1.395	.172
	Equal variances not assumed			-1.665	15.5	.116	-.612	.367	-1.393	.169

The significant level of variances is 0.065, which is greater than 0.05. Therefore, we do not reject the null hypothesis for Levene's Test, and we conclude that equal variances are assumed for watching television or not and the importance attached to attractive décor. Next, we looked at the significance for equal variances assumed, which is 0.126. Since it is greater than 0.05, we do not reject the null hypothesis and make the conclusion that there is no difference between those watching television or not when looking at the importance of attractive decor. This means that the Wall Street Journal's claim does not apply to Chef Gaston restaurant. As a result, we recommend that Chef Gaston does not take television watching habits into consideration when choosing decor. We feel that because watching or not watching tv does not have a big effect on the means of attractive decor, Chef Gaston should spend his time focusing on more important areas.

d. The importance attached to Valet Parking

Levene's Test:

Null Hypothesis: H_0: $\sigma_1^2 = \sigma_2^2$, The variances are the same for people who are watching television or are not (equal variances assumed).

Alternative Hypothesis: H_a: $\sigma_1^2 \neq \sigma_2^2$, There is a significant difference in the rating variances of those watching television or are not, and the importance attached to Valet Parking.

Independent Sample T-test for Equality of Means

Null Hypothesis: $H_0: \mu_1 = \mu_2$, There is no difference between watching television or no and the importance attached to Valet Parking.

Alternative Hypothesis: $H_a: \mu_1 \neq \mu_2$, There is a difference between watching television or no and the importance attached to Valet Parking.

T-Test

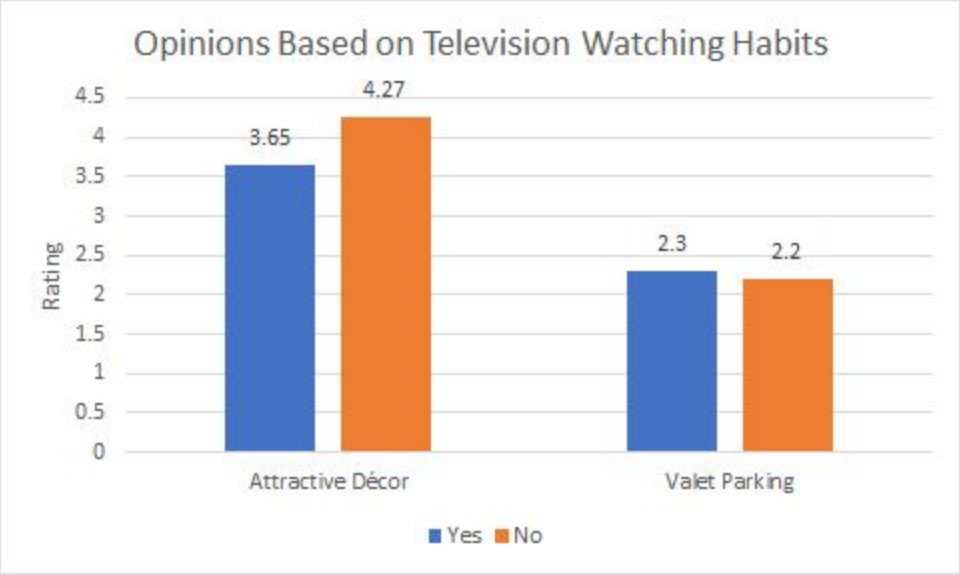
Group Statistics

	Would you describe yourself as one who watches television?	N	Mean	Std. Deviation	Std. Error Mean
Free Valet Parking	Yes	342	2.30	1.209	.065
	No	15	2.20	1.568	.405

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Free Valet Parking	Equal variances assumed	1.393	.239	.322	355	.748	.104	.323	-.531	.740
	Equal variances not assumed			.254	14.740	.803	.104	.410	-.771	.979

The significant level of variances is 0.239, which is greater than 0.05. Therefore, we do not reject the null hypothesis for Levene's Test, and we conclude that equal variances are assumed for watching television or not and the importance attached to Valet Parking. Next, we look at the significance for equal variances assumed, which is 0.748. Since it is greater than 0.05, we do not reject the null hypothesis and make the conclusion that there is no difference between watching television or not watching television and the importance attached to Valet Parking. In conclusion, the Wall Street Journal's claim does not apply to Chef Gaston restaurant. As a result, we recommend that Chef Gaston does not take television watching habits into consideration when choosing whether or not he should have valet parking. We feel that because watching or not watching tv does not have a big effect on the means of valet parking, Chef Gaston should spend his time focusing on more important areas.



3. *During a discussion with the researchers conducting the study, Chef Gaston raises a question as to whether customers who are more educated are more likely to patronize the new restaurant. Additionally, he states that the differences in likelihood to patronize are likely to exist between all groups of customers based on education.*

Null Hypothesis: H_0:μ1= μ2= μ3=...=μk, There is no difference in the average likelihood to patronize the restaurant among the different education groups.
Alternative Hypothesis: H_1: At least one pair of means has a statistically significant difference.

ANOVA

Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	199.356	7	28.479	29.613	.000
Within Groups	335.642	349	.962		
Total	534.997	356			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?

Scheffe

(I) What is your highest level of education you have achieved?	(J) What is your highest level of education you have achieved?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Less than High School	Some High School	.300	.439	1.000	-1.36	1.96
	High School Graduate	.092	.412	1.000	-1.46	1.65
	Some College (No Degree)	.317	.420	.999	-1.27	1.90
	Associate Degree	-.831	.412	.773	-2.39	.73

	Bachelor's Degree	-1.796*	.317	.000	-2.99	-.60
	Master's Degree	-2.055*	.330	.000	-3.30	-.81
	Doctorate Degree	-3.350*	.465	.000	-5.11	-1.59
Some High School	Less than High School	-.300	.439	1.000	-1.96	1.36
	High School Graduate	-.208	.412	1.000	-1.76	1.35
	Some College (No Degree)	.017	.420	1.000	-1.57	1.60
	Associate Degree	-1.131	.412	.380	-2.69	.43
	Bachelor's Degree	-2.096*	.317	.000	-3.29	-.90
	Master's Degree	-2.355*	.330	.000	-3.60	-1.11
	Doctorate Degree	-3.650*	.465	.000	-5.41	-1.89
High School Graduate	Less than High School	-.092	.412	1.000	-1.65	1.46
	Some High School	.208	.412	1.000	-1.35	1.76
	Some College (No Degree)	.224	.393	1.000	-1.26	1.71
	Associate Degree	-.923	.385	.569	-2.38	.53
	Bachelor's Degree	-1.889*	.280	.000	-2.95	-.83
	Master's Degree	-2.147*	.294	.000	-3.26	-1.04
	Doctorate Degree	-3.442*	.441	.000	-5.11	-1.78
Some College (No Degree)	Less than High School	-.317	.420	.999	-1.90	1.27
	Some High School	-.017	.420	1.000	-1.60	1.57

	High School Graduate	-.224	.393	1.000	-1.71	1.26
	Associate Degree	-1.147	.393	.291	-2.63	.33
	Bachelor's Degree	-2.113*	.291	.000	-3.21	-1.01
	Master's Degree	-2.371*	.304	.000	-3.52	-1.22
	Doctorate Degree	-3.667*	.448	.000	-5.36	-1.98
Associate Degree	Less than High School	.831	.412	.773	-.73	2.39
	Some High School	1.131	.412	.380	-.43	2.69
	High School Graduate	.923	.385	.569	-.53	2.38
	Some College (No Degree)	1.147	.393	.291	-.33	2.63
	Bachelor's Degree	-.965	.280	.109	-2.02	.09
	Master's Degree	-1.224*	.294	.017	-2.33	-.11
	Doctorate Degree	-2.519*	.441	.000	-4.18	-.86
Bachelor's Degree	Less than High School	1.796*	.317	.000	.60	2.99
	Some High School	2.096*	.317	.000	.90	3.29
	High School Graduate	1.889*	.280	.000	.83	2.95
	Some College (No Degree)	2.113*	.291	.000	1.01	3.21
	Associate Degree	.965	.280	.109	-.09	2.02
	Master's Degree	-.258	.130	.787	-.75	.23
	Doctorate Degree	-1.554*	.353	.008	-2.89	-.22

Master's Degree	Less than High School	2.055*	.330	.000	.81	3.30
	Some High School	2.355*	.330	.000	1.11	3.60
	High School Graduate	2.147*	.294	.000	1.04	3.26
	Some College (No Degree)	2.371*	.304	.000	1.22	3.52
	Associate Degree	1.224*	.294	.017	.11	2.33
	Bachelor's Degree	.258	.130	.787	-.23	.75
	Doctorate Degree	-1.295	.364	.085	-2.67	.08
Doctorate Degree	Less than High School	3.350*	.465	.000	1.59	5.11
	Some High School	3.650*	.465	.000	1.89	5.41
	High School Graduate	3.442*	.441	.000	1.78	5.11
	Some College (No Degree)	3.667*	.448	.000	1.98	5.36
	Associate Degree	2.519*	.441	.000	.86	4.18
	Bachelor's Degree	1.554*	.353	.008	.22	2.89
	Master's Degree	1.295	.364	.085	-.08	2.67

*. The mean difference is significant at the 0.05 level.

Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?

Scheffe[a,b]

What is your highest level of education you have achieved?	N	Subset for alpha = 0.05

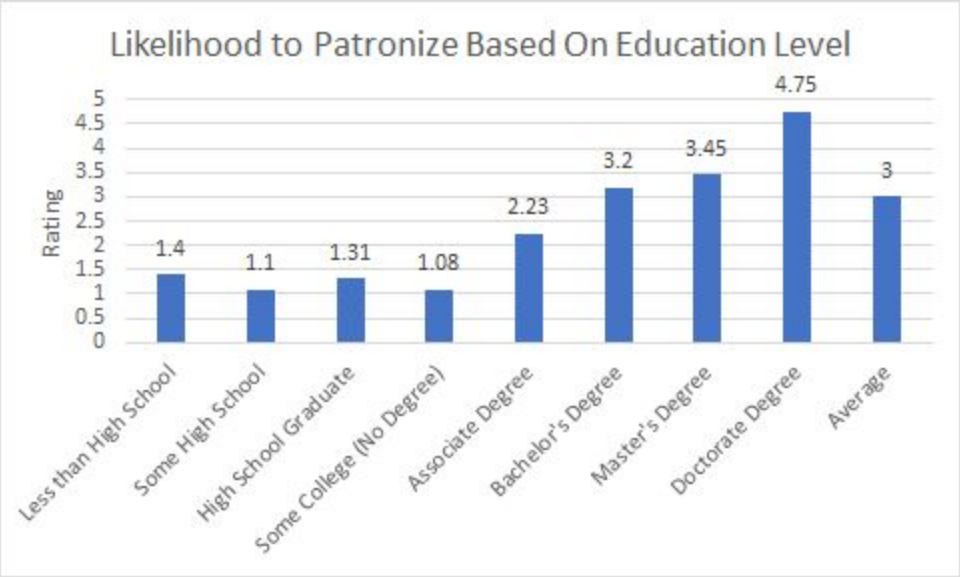
		1	2	3
Some College (No Degree)	12	1.08		
Some High School	10	1.10		
High School Graduate	13	1.31		
Less than High School	10	1.40		
Associate Degree	13	2.23	2.23	
Bachelor's Degree	214		3.20	
Master's Degree	77		3.45	3.45
Doctorate Degree	8			4.75
Sig.		.226	.154	.103

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 13.797.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Since the significance in the one-way ANOVA of 0.000 is less than 0.005, we reject the null hypothesis, which means that at least one pair of means has a statistically significant difference. To see which means are statistically different, we run a Post-hoc Scheffe Test. We can see in the Scheffe test that those with Master's and Doctorate Degrees are more likely to patronize the restaurant than any other education level, as the means for these education levels are in a different column and are higher than the rest. Associate, Bachelor and Master's Degrees are more likely to patronize than those with some college (no degree), some high school, high school graduate and less than high school. This means that those who have a higher level of education are more likely to patronize the restaurant. However, there is not a significant difference between every level of education. The only significant differences exist between those who have less than a high school degree, those people who have some high school experience and high school graduates, and those who have Bachelor's, Master's, and Doctorate Degrees. As a result, we recommend that Chef Gaston markets to those with higher education levels, as they are most likely to patronize the restaurant.



4. *With respect to those who are "Completely Likely" to patronize Chef Gaston's restaurant, the researchers believe that the potential patrons will consider the following restaurant characteristics "Completely Important."*

a. Wine Selection

Null Hypothesis: H_0: The mean rating of wine selection for those who are "Completely Likely" to attend Chef Gaston's restaurant (μ) is equal to 5.

Alternative Hypothesis: H_1: The mean rating of wine selection for those who are "Completely Likely" to attend Chef Gaston's restaurant (μ) is not equal to 5.

One-Sample Statistics				
	N	*Mean*	*Std. Deviation*	*Std. Error Mean*
Wine Selection	*63*	*1.33*	*.475*	*.060*

One-Sample Test						
	Test Value =					

	5					
	t	*df*	*Sig. (2-tailed)*	*Mean Difference*	*95% Confidence Interval of the Difference*	
					Lower	*Upper*
Wine Selection	*-61.245*	*62*	*.000*	*-3.667*	*-3.79*	*-3.55*

Since the significance of 0.000 is less than 0.005, we reject the null hypothesis and state that the mean rating for wine selection is not equal to 5, which stands for "Completely Important." This means that those who are "Completely Likely" to patronize the restaurant do not view wine selection as "Completely Important;" in fact, their average mean for the importance of wine selection is 1.33, which is closest to "Completely Unimportant." This means that the researchers are incorrect, and that the wine selection does not influence the choices of those who are "Completely Likely."

b. Famous Chef

Null Hypothesis: H_0: The mean rating of famous chef for those who are "Completely Likely" to attend Chef Gaston's restaurant (μ) is equal to 5.

Alternative Hypothesis: H_1: The mean rating of famous chef for those who are "Completely Likely" to attend Chef Gaston's restaurant (μ) is not equal to 5.

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Famous Chef	63	1.46	.502	.063

One-Sample Test						
	Test Value = 5					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the	

					Difference	
					Lower	Upper
Famous Chef	-55.919	62	.000	-3.540	-3.67	-3.41

Since the significance of 0.000 is less than 0.005, we reject the null hypothesis and state that the mean rating for famous chef is not equal to 5, which stands for "Completely Important." This means that those who are "Completely Likely" to patronize the restaurant do not view famous chef selection as "Completely Important;" in fact, their average mean for the importance of famous chef is 1.46, which is closest to "Completely Unimportant." This means that the researchers are incorrect, and that the famous chef does not influence the choices of those who are "Completely Likely."

c. Locally-sourced Ingredients
Null Hypothesis: H_0: The mean rating of locally-sourced ingredients for those who are "Completely Likely" to attend Chef Gaston's restaurant (μ) is equal to 5.
Alternative Hypothesis: H_1: The mean rating of locally-sourced ingredients for those who are "Completely Likely" to attend Chef Gaston's restaurant (μ) is not equal to 5.

One-Sample Statistics				
	N	*Mean*	*Std. Deviation*	*Std. Error Mean*
Locally-sourced Ingredients	*63*	*4.52*	*.503*	*.063*

One-Sample Test						
	Test Value = 5					
	t	*df*	*Sig. (2-tailed)*	*Mean Difference*	*95% Confidence Interval of the Difference*	

					Lower	*Upper*
Locally-sourced Ingredients	*-7.508*	*62*	*.000*	*-.476*	*-.60*	*-.35*

Since the significance of 0.000 is less than 0.005, we reject the null hypothesis and state that the mean rating for locally-sourced ingredients is not equal to 5, which stands for "Completely Important." This means that those who are "Completely Likely" to patronize the restaurant do not view locally-sourced ingredients selection as "Completely Important;" although their average mean for the importance of locally-sourced ingredients is 4.53, it is not statistically the same as a mean of 5. This means that the researchers are incorrect, and that the locally-sourced ingredients do not influence the choices of those who are "Completely Likely."

d. Live Music

Null Hypothesis: H_0: The mean rating of live music for those who are "Completely Likely" to attend Chef Gaston's restaurant (μ) is equal to 5.

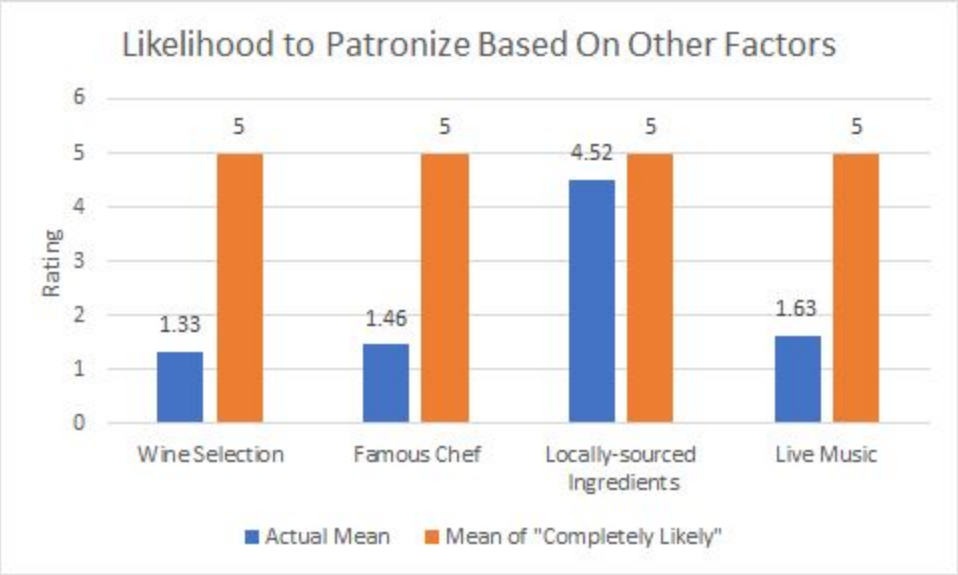
Alternative Hypothesis: H_1: The mean rating of live music for those who are "Completely Likely" to attend Chef Gaston's restaurant (μ) is not equal to 5.

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Live Music	63	1.63	.485	.061

One-Sample Test						
	Test Value = 5					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper

Live Music	-55.035	62	.000	-3.365	-3.49	-3.24

Since the significance of 0.000 is less than 0.005, we reject the null hypothesis and state that the mean rating for live music is not equal to 5, which stands for "Completely Important." This means that those who are "Completely Likely" to patronize the restaurant do not view live music as "Completely Important;" in fact, the average mean for the importance of live music is 1.63, which is closest to "Somewhat Unimportant." This means that the researchers are incorrect, and that the live music does not influence the choices of those who are "Completely Likely" as much as they assumed.



5. *Chef Gaston is also planning ahead to understand who the best target customers would be for the new restaurant. Are customers with a higher household income are more likely to patronize the new restaurant compared to those with lower household incomes?*

Null Hypothesis: H_0:μ1= μ2= μ3=μ4=μ5, There is no difference in the average likelihood to patronize the restaurant among the different income groups.
Alternative Hypothesis: H_1: At least one pair of means has a statistically significant difference.

ANOVA

Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	390.173	6	65.029	157.157	.000

Within Groups	144.824	350	.414		
Total	534.997	356			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?

Scheffe

(I) Which of the following categories best describes your before tax household income?	(J) Which of the following categories best describes your before tax household income?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
<$15,000	$15,000 to $24,999	.123	.180	.998	-.52	.76
	$25,000 to $49,999	-1.424*	.154	.000	-1.97	-.87
	$50,000 to $74,999	-1.483*	.146	.000	-2.01	-.96
	$75,000 to $99,999	-2.585*	.223	.000	-3.38	-1.79
	$100,000 to $149,999	-3.295*	.172	.000	-3.91	-2.68
	$150,000+	-3.062*	.157	.000	-3.62	-2.50
$15,000 to $24,999	<$15,000	-.123	.180	.998	-.76	.52
	$25,000 to $49,999	-1.547*	.141	.000	-2.05	-1.04
	$50,000 to $74,999	-1.606*	.133	.000	-2.08	-1.13
	$75,000 to $99,999	-2.708*	.215	.000	-3.47	-1.94
	$100,000 to $149,999	-3.418*	.161	.000	-3.99	-2.84
	$150,000+	-3.185*	.145	.000	-3.70	-2.67

$25,000 to $49,999	<$15,000	1.424*	.154	.000	.87	1.97
	$15,000 to $24,999	1.547*	.141	.000	1.04	2.05
	$50,000 to $74,999	-.059	.095	.999	-.40	.28
	$75,000 to $99,999	-1.161*	.194	.000	-1.85	-.47
	$100,000 to $149,999	-1.871*	.131	.000	-2.34	-1.40
	$150,000+	-1.638*	.111	.000	-2.03	-1.24
$50,000 to $74,999	<$15,000	1.483*	.146	.000	.96	2.01
	$15,000 to $24,999	1.606*	.133	.000	1.13	2.08
	$25,000 to $49,999	.059	.095	.999	-.28	.40
	$75,000 to $99,999	-1.102*	.188	.000	-1.77	-.43
	$100,000 to $149,999	-1.812*	.122	.000	-2.25	-1.38
	$150,000+	-1.579*	.100	.000	-1.94	-1.22
$75,000 to $99,999	<$15,000	2.585*	.223	.000	1.79	3.38
	$15,000 to $24,999	2.708*	.215	.000	1.94	3.47
	$25,000 to $49,999	1.161*	.194	.000	.47	1.85
	$50,000 to $74,999	1.102*	.188	.000	.43	1.77
	$100,000 to $149,999	-.709	.208	.074	-1.45	.03
	$150,000+	-.476	.196	.437	-1.18	.22
$100,000 to $149,999	<$15,000	3.295*	.172	.000	2.68	3.91
	$15,000 to $24,999	3.418*	.161	.000	2.84	3.99
	$25,000 to $49,999	1.871*	.131	.000	1.40	2.34

	$50,000 to $74,999	1.812*	.122	.000	1.38	2.25
	$75,000 to $99,999	.709	.208	.074	-.03	1.45
	$150,000+	.233	.135	.810	-.25	.71
$150,000+	<$15,000	3.062*	.157	.000	2.50	3.62
	$15,000 to $24,999	3.185*	.145	.000	2.67	3.70
	$25,000 to $49,999	1.638*	.111	.000	1.24	2.03
	$50,000 to $74,999	1.579*	.100	.000	1.22	1.94
	$75,000 to $99,999	.476	.196	.437	-.22	1.18
	$100,000 to $149,999	-.233	.135	.810	-.71	.25

*. The mean difference is significant at the 0.05 level.

Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?

Scheffe[a,b]

Which of the following categories best describes your before tax household income?	N	Subset for alpha = 0.05			
		1	2	3	4
$15,000 to $24,999	29	1.14			
<$15,000	23	1.26			
$25,000 to $49,999	73		2.68		
$50,000 to $74,999	121		2.74		
$75,000 to $99,999	13			3.85	
$150,000+	62			4.32	4.32

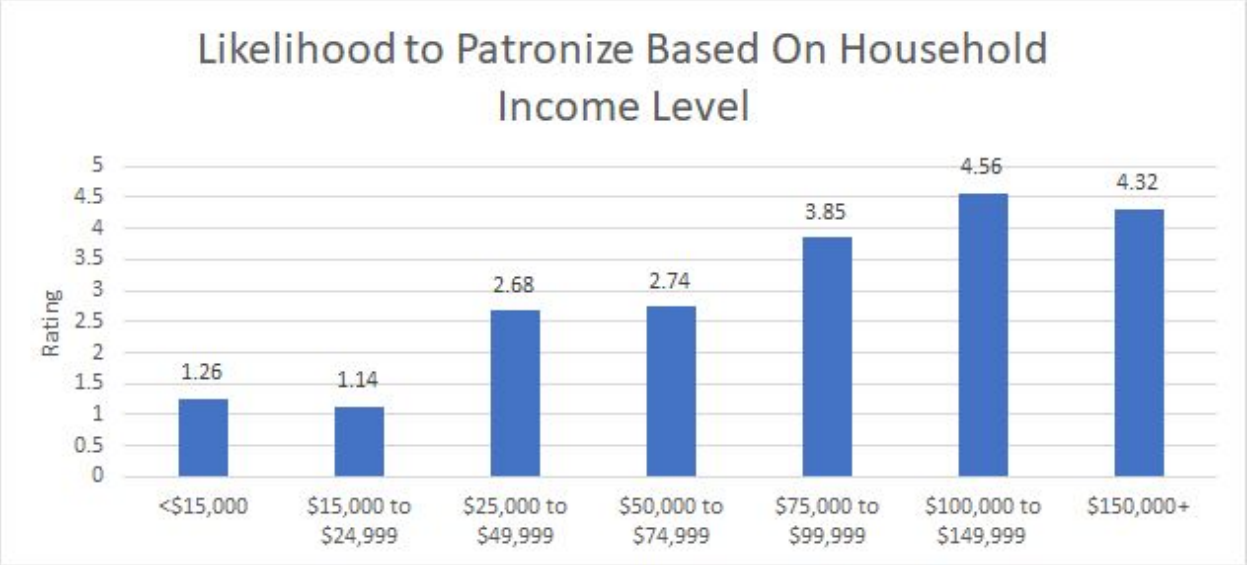
$100,000 to $149,999	36				4.56
Sig.		.997	1.000	.195	.912

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 31.710.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Since the significance in the one-way ANOVA of 0.000 is less than 0.005, we reject the null hypothesis, which means that at least one pair of means has a statistically significant difference. To see which means are statistically different, we run a Post-hoc Scheffe Test. We can see in the Scheffe test that those with household income $100,000 to $149,000 and 150,000+ are more likely to patronize the restaurant than any other household income level ($99,999 to <$15,000), as the means for these education levels are in a different column and are higher than the rest. Therefore, we can conclude that customers with a higher household income are more likely to patronize the new restaurant compared to those with lower household incomes.



Is the likelihood to patronize the restaurant is influenced by type of television programs the customers watch?

Null Hypothesis: H_0:μ1= μ2= μ3=μ4, There is no difference in the average likelihood to patronize the restaurant among the different television programs customers watch.
Alternative Hypothesis: H_1: At least one pair of means has a statistically significant difference.

ANOVA

Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	253.542	3	84.514	113.824	.000
Within Groups	250.964	338	.742		
Total	504.506	341			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?

Scheffe

(I) What types of programs do you watch most on television?	(J) What types of programs do you watch most on television?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Sports	Comedy	-2.620*	.156	.000	-3.06	-2.18
	Drama	-1.144*	.135	.000	-1.52	-.76
	Talk Shows	-2.096*	.153	.000	-2.53	-1.67
Comedy	Sports	2.620*	.156	.000	2.18	3.06
	Drama	1.476*	.127	.000	1.12	1.83
	Talk Shows	.524*	.146	.005	.11	.93
Drama	Sports	1.144*	.135	.000	.76	1.52
	Comedy	-1.476*	.127	.000	-1.83	-1.12
	Talk Shows	-.952*	.124	.000	-1.30	-.61
Talk Shows	Sports	2.096*	.153	.000	1.67	2.53
	Comedy	-.524*	.146	.005	-.93	-.11

Drama	.952*	.124	.000	.61	1.30

*. The mean difference is significant at the 0.05 level.

Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?

Scheffe[a,b]

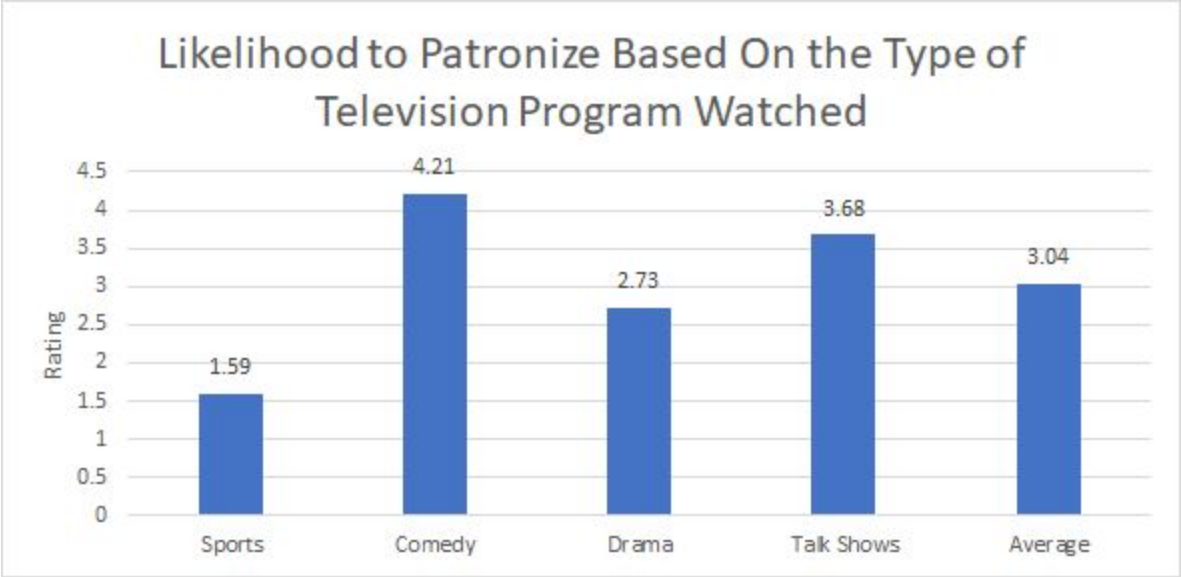
What types of programs do you watch most on television?	N	Subset for alpha = 0.05			
		1	2	3	4
Sports	56	1.59			
Drama	146		2.73		
Talk Shows	73			3.68	
Comedy	67				4.21
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 75.004.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Since the significance in the one-way ANOVA of 0.000 is less than 0.005, we reject the null hypothesis, which means that at least one pair of means has a statistically significant difference. To see which means are statistically different, we run a Post-hoc Scheffe Test. We can see in the Scheffe test that there is a significant difference in patronage based on what television program people like to watch. Those who like to watch comedy are more likely to patronize the restaurant than those who like to watch talk shows, drama, and sports. The ranking for patronize from most patronize to least patronize is people who like to comedy, talk show, drama then sports. Therefore, we can conclude that customers who like comedy are most likely to come to Chef Gaston's restaurant and we suggest that he markets to them, perhaps by making a funny commercial or advertising on networks that show primarily comedy shows.



***6**. While discussing the objectives of research project with the researchers, Chef Gaston states that the appeal for Chef Gaston's Restaurant:*

a. Differs for women compared to men or vice versa.

For Levene's Test:

Null Hypothesis: H_0: $\sigma_1^2 = \sigma_2^2$, The variances of appeal are the same between male and female respondents (equal variance assumed).

Alternative Hypothesis: H_1: $\sigma_1^2 \neq \sigma_2^2$, There is a significant difference in the appeal variances.

For Independent Samples T-Test:

Null Hypothesis: H_0:$\mu_1 = \mu_2$, There is no difference between the average appeal for men and women.

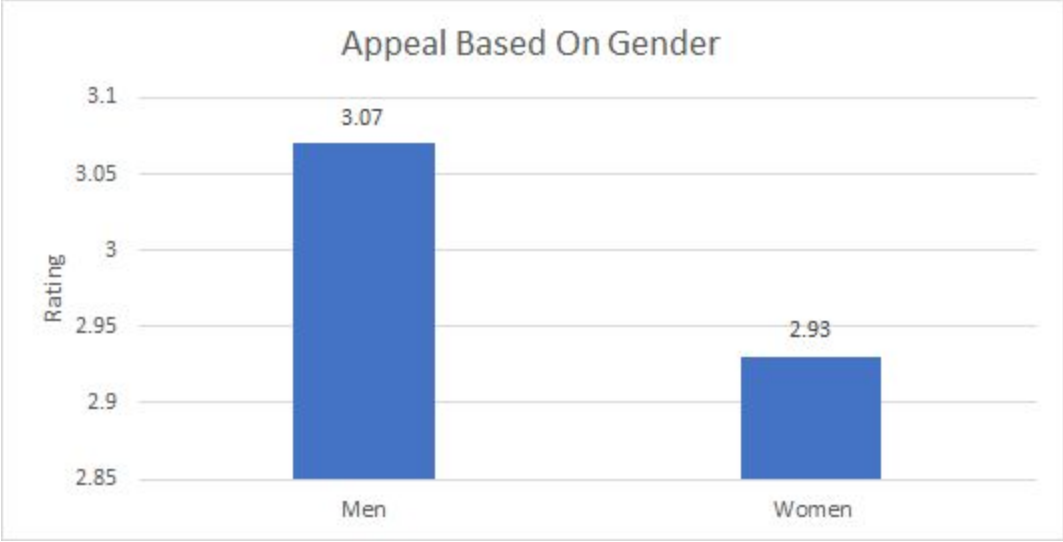
Alternative Hypothesis: H_1:$\mu_1 \neq \mu_2$, The population mean iOT EQUAL to the test value.

Group Statistics					
	What is your gender?	N	Mean	Std. Deviation	Std. Error Mean
Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?	Male	188	3.07	1.263	.092
	Female	169	2.93	1.183	.091

Independent Samples Test										

		Levene's Test for Equality of Variances	t-test for Equality of Means							
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?	Equal variances assumed	1.474	.225	1.079	355	.281	.140	.130	-.115	.396
	Equal variances not assumed			1.083	354.38	.280	.140	.129	-.114	.395

Since the significance in Levene's test of 0.225 is greater than .05, we do not reject the null hypothesis that states that the variances of appeal are the same between male and female groups. This means that the means of male (3.07) and female (2.93) are assumed to be equal. In Layman's terms, this means that the rating variances of both genders are assumed to be equal. For Chef Gaston, this means that appeal does not vary between males and females, and he should not spend time or money on marketing to potential clients based on gender.



b. Differs by the type of programs they watch most on television.

Null Hypothesis: H_0:μ1= μ2= μ3=μ4=μ5, Appeal is not statistically different based on type of program watched.

Alternative Hypothesis: At least one pair is statistically different based on type of program watched.

ANOVA					
Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	253.542	3	84.514	113.824	.000
Within Groups	250.964	338	.742		
Total	504.506	341			

Multiple Comparisons						
Dependent Variable: Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?						
Scheffe						
	(J) What types of programs do you watch most on television?				95% Confidence Interval	
(I) What types of programs do you watch most on television?		Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Sports	Comedy	-2.620*	.156	.000	-3.06	-2.18
	Drama	-1.144*	.135	.000	-1.52	-.76
	Talk Shows	-2.096*	.153	.000	-2.53	-1.67
Comedy	Sports	2.620*	.156	.000	2.18	3.06
	Drama	1.476*	.127	.000	1.12	1.83

	Talk Shows	.524*	.146	.005	.11	.93
Drama	Sports	1.144*	.135	.000	.76	1.52
	Comedy	-1.476*	.127	.000	-1.83	-1.12
	Talk Shows	-.952*	.124	.000	-1.30	-.61
Talk Shows	Sports	2.096*	.153	.000	1.67	2.53
	Comedy	-.524*	.146	.005	-.93	-.11
	Drama	.952*	.124	.000	.61	1.30

*. The mean difference is significant at the 0.05 level.

Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?					
Scheffe[a,b]					
What types of programs do you watch most on television?		Subset for alpha = 0.05			
	N	1	2	3	4
Sports	56	1.59			
Drama	146		2.73		
Talk Shows	73			3.68	
Comedy	67				4.21
Sig.		1.000	1.000	1.000	1.000

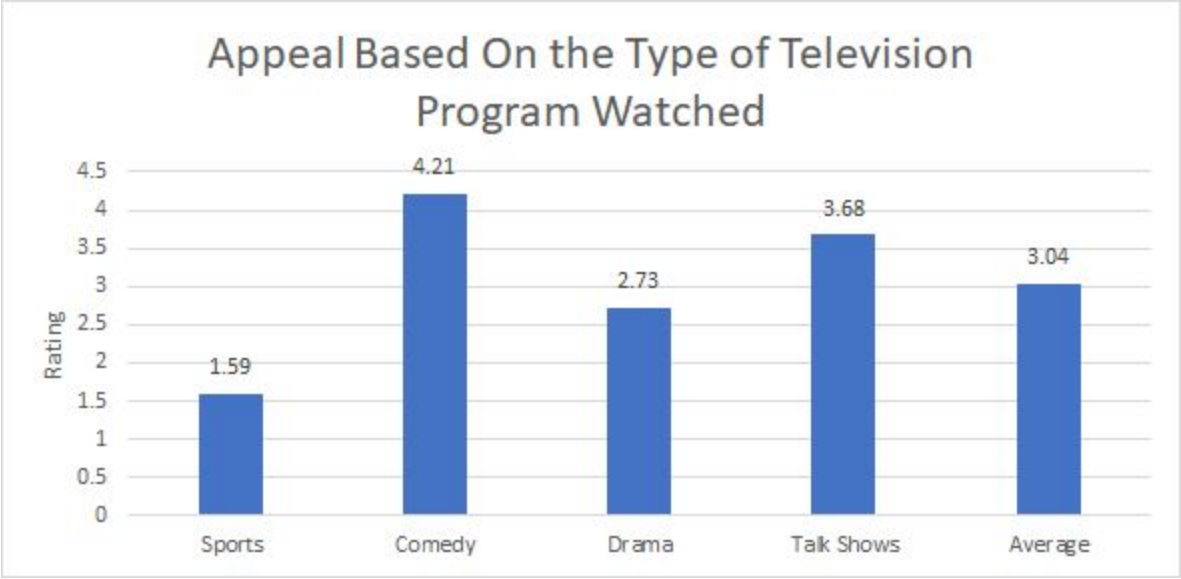
Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 75.004.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not

guaranteed.

The significance of 0.000 is less than 0.05, so we reject the null hypothesis, meaning that at least one pair is statistically different based on type of program watched and complete a Post-Hoc Scheffe. Based on the Post-Hoc Scheffe test, we can see that those who watch comedy have the highest mean for appeal, at 4.21 out of 5, those who watch talk shows are next at 3.68, those who watch drama are next at 2.73 and those who watch sports are last at 1.59. As a result, we don't think that Chef should spend his time marketing to those who watch sports and should focus most of his time, money and efforts marketing to people who watch comedy, as they are the majority of his audience.



c. Differs by the number of hours they spend surfing the Internet on an average day.

Null Hypothesis: H_0: $\mu_1 = \mu_2 = \mu_3 = \ldots = \mu_k$, Appeal is not statistically different based on the number of hours they spend surfing the Internet on an average day.
Alternative Hypothesis: H_1: At least one pair is statistically different based on the number of hours they spend surfing the Internet on an average day.

ANOVA

Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?					
	Sum of Squares	df	Mean Square	F	Sig.

Between Groups	4.033	5	.807	.533	.751
Within Groups	530.964	351	1.513		
Total	534.997	356			

Since the significance of .751 is greater than 0.05, we do not reject the null hypothesis that states that appeal is not statistically different based on how many hours per day one spends surfing the Internet. In Layman's terms, this means that there is no significant difference of ratings between at least 2 groups. This means that Chef Gaston should not spend time marketing to potential customers based on the number of hours per day one spends on the internet.

d. Differs by the type of website they spend the most time on, when surfing the Internet.
Null Hypothesis: $H_0: \mu_1 = \mu_2 = \mu_3 = \ldots = \mu_k$, Appeal is not statistically different based on the type of website they spend the most time on, when surfing the Internet.
Alternative Hypothesis: At least one pair is statistically different based on the type of website they spend the most time on, when surfing the Internet.
ANOVA

Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	187.758	4	46.940	47.768	.000
Within Groups	326.242	332	.983		
Total	514.000	336			

Multiple Comparisons						
Dependent Variable: Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?						
Scheffe						

(I) What type of website do you spend the most time on, when you are surfing the Internet?	(J) What type of website do you spend the most time on, when you are surfing the Internet?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
News (CNN.com, FoxNews.com, etc.)	Sports (ESPN.com, NFL.com, etc.)	-.368	.195	.471	-.97	.24
	Shopping (Amazon.com, Buy.com, etc.)	.918*	.175	.000	.38	1.46
	Social Media (Facebook, Twitter, etc.)	2.090*	.202	.000	1.46	2.72
	Other	.751*	.181	.002	.19	1.31
Sports (ESPN.com, NFL.com, etc.)	News (CNN.com, FoxNews.com, etc.)	.368	.195	.471	-.24	.97
	Shopping (Amazon.com, Buy.com, etc.)	1.286*	.164	.000	.78	1.79
	Social Media (Facebook, Twitter, etc.)	2.458*	.193	.000	1.86	3.06
	Other	1.119*	.171	.000	.59	1.65
Shopping (Amazon.com, Buy.com, etc.)	News (CNN.com, FoxNews.com, etc.)	-.918*	.175	.000	-1.46	-.38
	Sports	-1.286*	.164	.000	-1.79	-.78

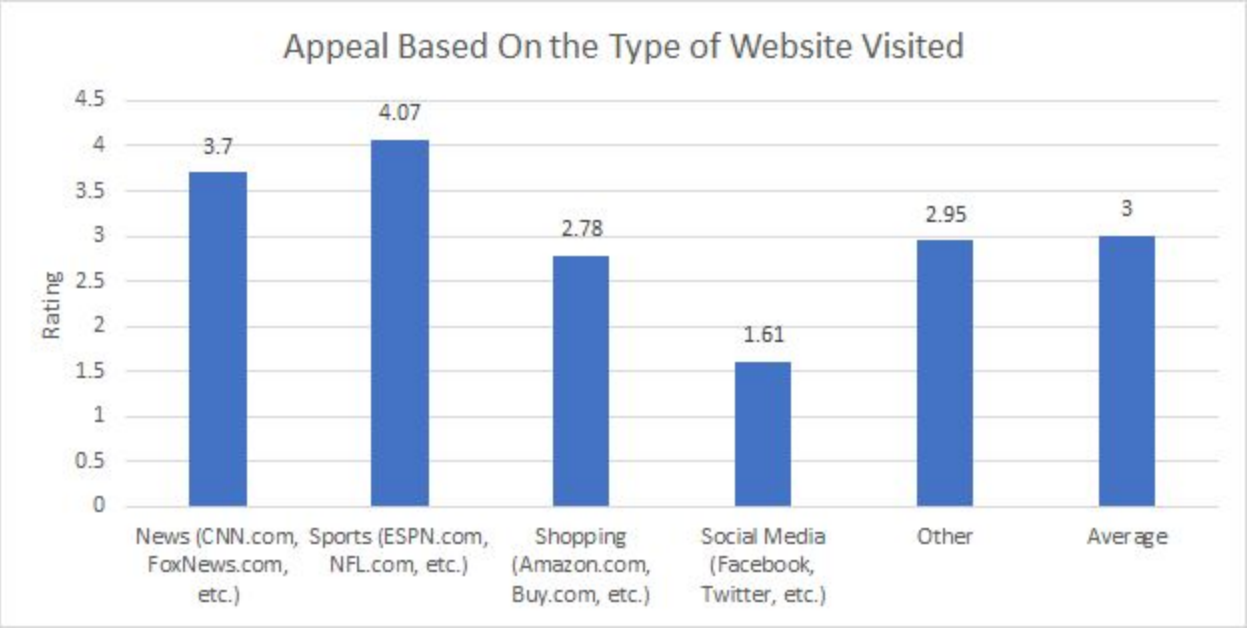
	(ESPN.com, NFL.com, etc.)					
	Social Media (Facebook, Twitter, etc.)	1.172*	.172	.000	.64	1.71
	Other	-.167	.147	.863	-.62	.29
Social Media (Facebook, Twitter, etc.)	News (CNN.com, FoxNews.com, etc.)	-2.090*	.202	.000	-2.72	-1.46
	Sports (ESPN.com, NFL.com, etc.)	-2.458*	.193	.000	-3.06	-1.86
	Shopping (Amazon.com, Buy.com, etc.)	-1.172*	.172	.000	-1.71	-.64
	Other	-1.339*	.179	.000	-1.89	-.78
Other	News (CNN.com, FoxNews.com, etc.)	-.751*	.181	.002	-1.31	-.19
	Sports (ESPN.com, NFL.com, etc.)	-1.119*	.171	.000	-1.65	-.59
	Shopping (Amazon.com, Buy.com, etc.)	.167	.147	.863	-.29	.62
	Social Media (Facebook, Twitter, etc.)	1.339*	.179	.000	.78	1.89

*. The mean difference is significant at the 0.05 level.

Based on the description of the restaurant you just saw, how likely are you to have dinner at this restaurant?				
Scheffe[a,b]				
What type of website do you spend the most time on, when you are surfing the Internet?	N	Subset for alpha = 0.05		
		1	2	3
Social Media (Facebook, Twitter, etc.)	49	1.61		
Shopping (Amazon.com, Buy.com, etc.)	102		2.78	
Other	82		2.95	
News (CNN.com, FoxNews.com, etc.)	47			3.70
Sports (ESPN.com, NFL.com, etc.)	57			4.07
Sig.		1.000	.928	.376

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 61.555.
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Since the significance of .000 is less than .005, we reject the null hypothesis, which means that at least one pair is statistically different based on the type of website they spend the most time on, when surfing the Internet, and we complete a Post-Hoc Scheffe Test. According to the Scheffe test, those who spend the most time on sports websites are the most likely to find the restaurant appealing, followed by those who are on news websites, then people who are on shopping websites and then by those on social media sites. We recommend that Chef Gaston place more ads on Sports and News websites, as these tend to be the groups that find his restaurant most appealing and will therefore increase the profit in Chef Gaston's restaurant.



7. Chef Gaston wants to use the results from the survey research to determine which of the following customers are more likely to patronize:
a. a restaurant at an upscale location or one that is located within 30 minutes driving distance
Null Hypothesis: H_0: $\mu 1=\mu 2$; A restaurant at an upscale location and one within 30 minutes driving distance have the same mean for likelihood to patronize the restaurant.
Alternative Hypothesis: H_1: $\mu 1\neq\mu 2$; There is a significant difference in the average ratings for likelihood to patronize the restaurant.

Paired Samples Statistics

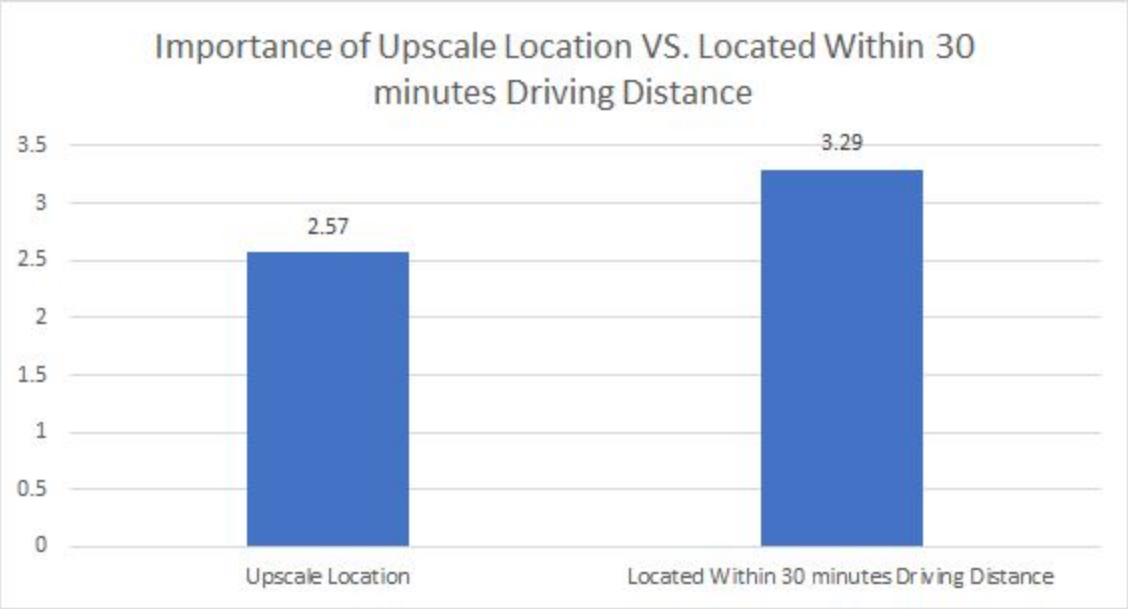
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Upscale Location	2.57	357	1.351	.071
	Located with 30 minutes driving distance	3.29	357	1.313	.069

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Upscale Location - Located with 30 minutes driving distance	-.720	2.532	.134	-.983	-.456	-5.372	356	.000

Since the significance of 0.00 is less than 0.05, we reject the null hypothesis and conclude that the means are not the same. We then look at the means in the Paired Samples Statistics to see that a "Located with 30 minutes driving distance" has a mean of 3.29, while the Upscale Location has a mean of 2.57. This means "Located with 30 minutes driving distance" is more important for customers, and that customers are more likely to patronize a restaurant "Located

with 30 minutes driving distance" than one with "Upscale Location". With that said, we recommend that Chef Gaston should focus on marketing to people who live 30 minutes away from his restaurant. We also suggest that he looks for a location for his restaurant that has the most possible amount of developments within a 30 minute drive.



b. a restaurant with a famous chef or one that has knowledgeable wait staff

Null Hypothesis: H_0: $\mu 1=\mu 2$; A restaurant with a famous chef and one that has knowledgeable wait staff have the same mean for likelihood to patronize the restaurant.

Alternative Hypothesis: H_1: $\mu 1\neq\mu 2$; There is a significant difference in the average ratings for likelihood to patronize the restaurant.

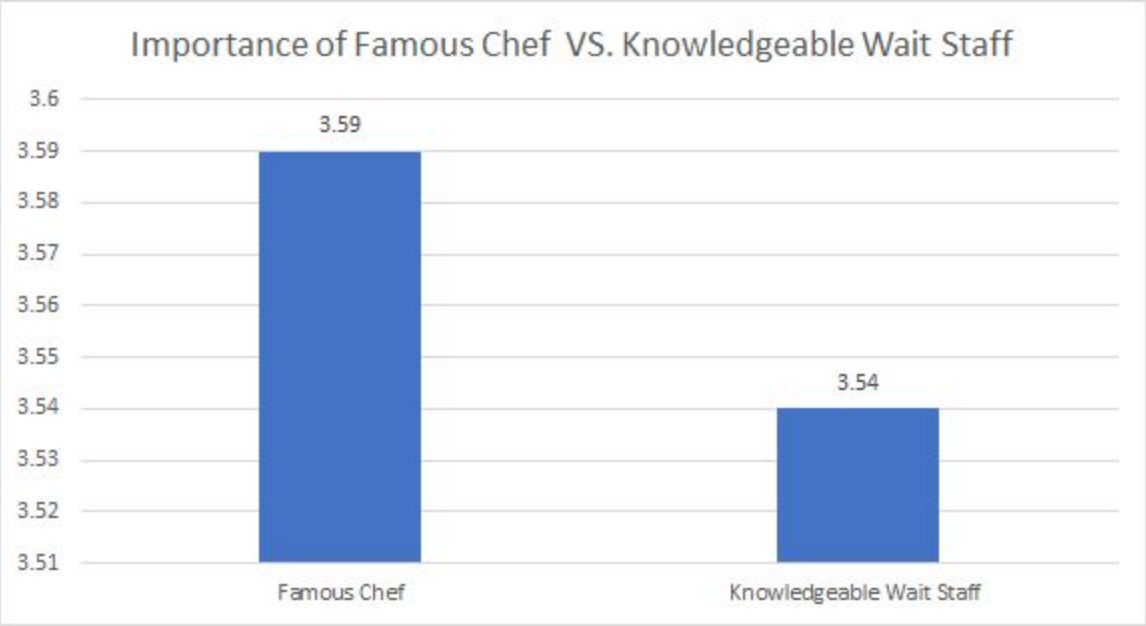
Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Famous Chef	3.59	357	1.501	.079
	Knowledgeable Wait Staff	3.54	357	1.470	.078

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Famous Chef - Knowledgeable Wait Staff	.059	.899	.048	-.035	.152	1.236	356	.217

Since the significance of .217 is greater than 0.05, we do not reject the null hypothesis and conclude that the means are the same. This means that statistically speaking, there is no difference in the likelihood of someone patronizing a restaurant because it has a famous chef or a knowledgeable wait staff. With that said, we recommend that Chef Gaston should focus on other things, as neither of these variables influence the likelihood of people patronizing his restaurant.



c. *a restaurant with a unique menu or one that sources their ingredients locally*
Null Hypothesis: H_0: μ1=μ2; A restaurant with a unique menu and one that sources their ingredients locally have the same mean for likelihood to patronize the restaurant.

Alternative Hypothesis: H_1: μ1≠μ2; There is a significant difference in the average ratings for likelihood to patronize the restaurant.

T-Test

Paired Samples Statistics

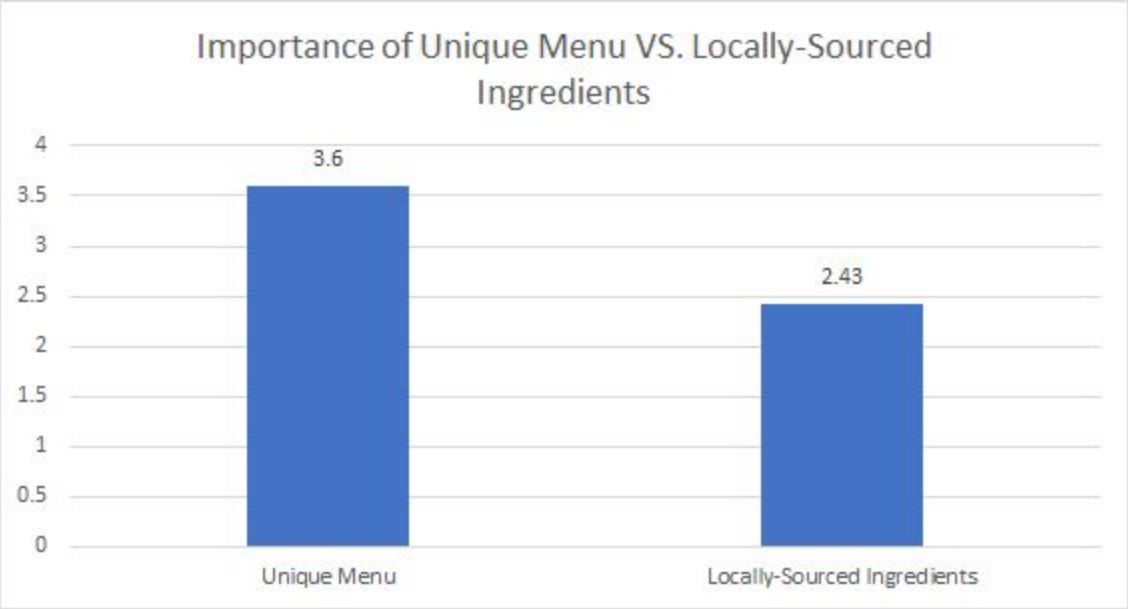
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Unique Menu	3.60	357	1.543	.082
	Locally-sourced Ingredients	2.43	357	1.484	.079

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Unique Menu - Locally-sourced Ingredients	1.165	2.938	.156	.859	1.471	7.494	356	.000

Since the significance of 0.00 is less than 0.05, we reject the null hypothesis and conclude that the means are not the same. We then look at the means in the Paired Samples Statistics to

see that an Unique Menu has a mean of 3.6, while the Locally-Sourced Ingredients has a mean of 2.43. This means that a Unique Menu is more important for customers, and that customers are more likely to to patronize a restaurant with a Unique Menu than one with Locally-Sourced Ingredients. As a result, we recommend that Chef Gaston work on creating an Unique Menu, whether this be by creating a seasonal menu or by incorporating unique ingredients from all over the world in its meals (since his potential customers don't view Locally Sourced Meals as important).



d. a restaurant that has a better wine selection or one that offers free valet parking

Null Hypothesis: H_0: μ1=μ2; A restaurant with a better wine selection and one that offers free valet parking have the same mean for likelihood to patronize the restaurant.

Alternative Hypothesis: H_1: μ1≠μ2; There is a significant difference in the average ratings for likelihood to patronize the restaurant.

Paired Samples Statistics

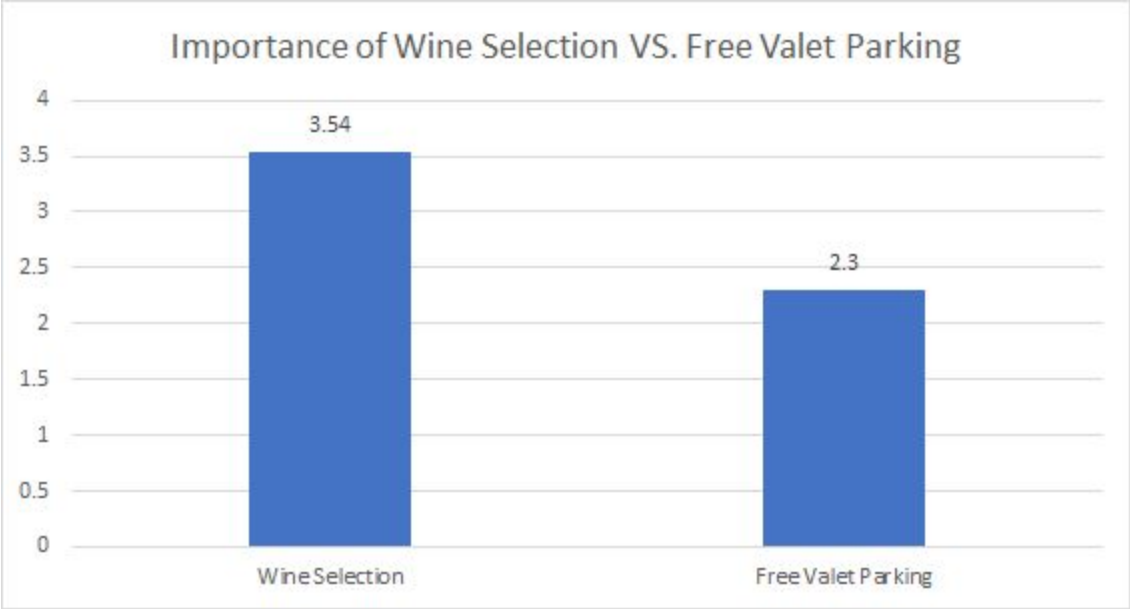
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Wine Selection	3.54	357	1.501	.079
	Free Valet Parking	2.30	357	1.224	.065

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Wine Selection - Free Valet Parking	1.244	2.388	.126	.995	1.492	9.841	356	.000

Since the significance of 0.00 is less than 0.05, we reject the null hypothesis and conclude that the means are not the same. We then look at the means in the Paired Samples Statistics to

see that a Wine Selection has a mean of 3.54, while Free Valet Parking has a mean of 2.30. This means that Wine Selection is more important for customers, and that customers are more likely to to patronize a restaurant with a better Wine Selection than one with Valet Parking. As a result, we recommend that Chef Gaston work on creating a broad wine selection, perhaps even suggesting wine pairings with dishes in order to increase his amount of customers. Furthermore, he should not spend much time thinking about Free Valet Parking for his restaurant, as his customers value having a broader wine selection more.



8. *Chef Gaston informs the researchers analyzing the data that he is planning on targeting different types of customers and wants to know, based on the survey data, which of the following are true about the customers.*

a. they spend an average of $ 150 per month (in dollars) in restaurants for meals only
Null Hypothesis: H_0: The average spending per month in a restaurant for meals only is equal to $150.
Alternative Hypothesis: H_1: The average spending per month in a restaurant for meals only is not equal to $150.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
On average, on a monthly basis, how much do you spend on lunch or dinner at restaurants?	357	$158.5910	$90.78166	$4.80467

One-Sample Test

	Test Value = 150					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
On average, on a monthly basis, how much do you spend on lunch or dinner at restaurants?	1.788	356	.075	$8.59104	-$0.8581	$18.0402

Since the significance of 0.075 is greater than 0.05, we do not reject the null hypothesis and conclude that the average spending per month in a restaurant for meals only is equal to $150. This means that statistically speaking, there is no difference on average spending of 158.59 with 150. So, Chef Gaston's research analyzation of data is true in this setting. We recommend that Chef Gaston take into consideration the fact that customers will spend on average $150 a month when creating prices for his menu.

b. they pay an average price of $20 an evening meal entrée

Null Hypothesis: H_0: The average payment on an evening meal entrée is equal to $20.

Alternative Hypothesis: H_1: The average payment on an evening meal entrée is not equal to $20.

One-Sample Statistics

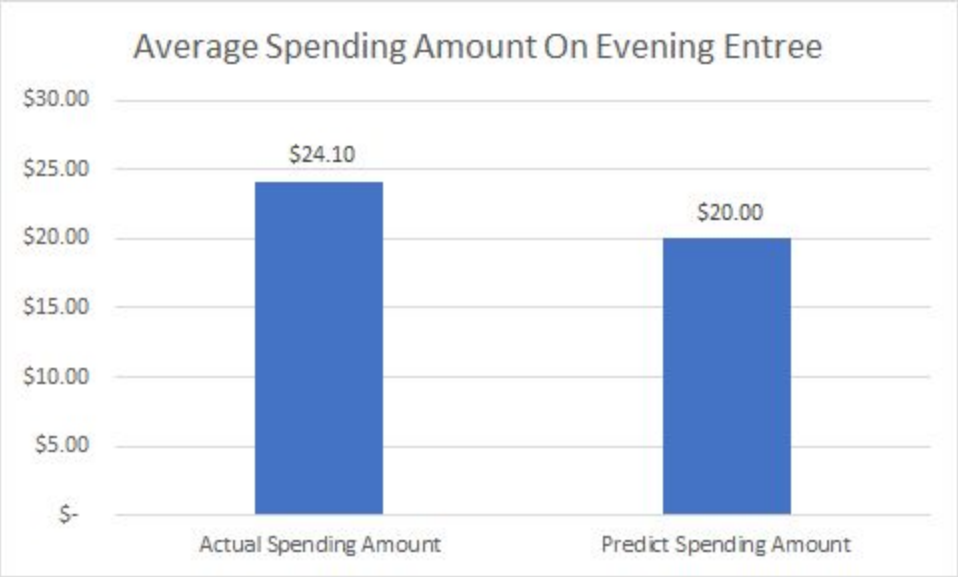
	N	Mean	Std. Deviation	Std. Error Mean
What would you expect an average evening meal entree item alone to be priced?	305	$24.0951	$10.11126	$0.57897

One-Sample Test

	Test Value = 20					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
What would you expect an average evening meal entree item alone to be priced?	7.073	304	.000	$4.09508	$2.9558	$5.2344

Since the significance of 0.00 is less than 0.05, we reject the null hypothesis and conclude that the average payment on evening meal entrée is not equal to $20. We then look at the means

in the One-Sample Statistics to see that the average spending on evening meal entree items has a mean of $24.09, while Chef Gaston believes the average spending is $20. We conclude that customers are willing to spend $24 on evening meal entrée items. As a result, we recommend that Chef Gaston price their evening meal entrée items around $24 on average, since customers are willing to pay this amount.



c. they live in a household with an average of 4 people

Null Hypothesis: H_0: The average number of people who are living in a household is 4 people.
Alternative Hypothesis: H_1: The average number of people who are living in a household is not 4 people.

One-Sample Statistics

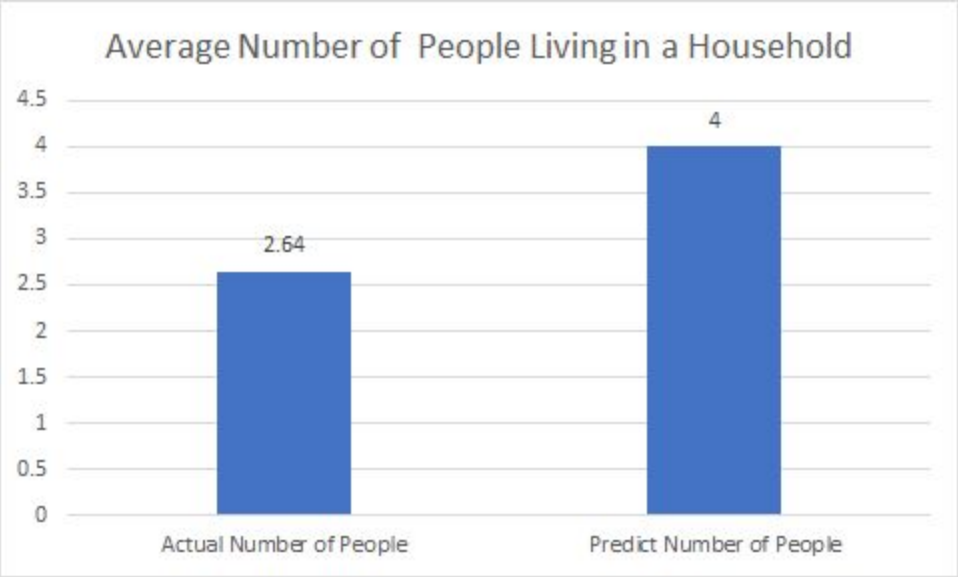
	N	Mean	Std. Deviation	Std. Error Mean
How many people live in your home (include all children under 18 living with you)?	357	2.64	1.382	.073

One-Sample Test

	Test Value = 4					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
How many people live in your home (include all children under 18 living with you)?	-18.571	356	.000	-1.359	-1.50	-1.21

Since the significance of 0.00 is less than 0.05, we reject the null hypothesis which means that the average number of people living in a household is not equal to 4 people. We can see in the one-sample statistics chart that the average number of people living in a household is 2.64. We recommend that Chef Gaston use this number (2.64) to forecast his sales for his business

plan, as it is a more accurate representation of his potential customers. Additionally, we think that he should create options on the menu, such as desserts, that are large enough for about 2-3 people to share, as this is the average amount of people in households coming to eat at his restaurant and will be targeted for the right size people.



d. they are, on average, 45 years old.
Null Hypothesis: H_0: The average age is 45 years old.
Alternative Hypothesis: H_1: The average age is not 45 years old.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Calculated Age of Respondent	357	45.4846	9.99342	.52891

One-Sample Test

	Test Value = 45					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Calculated Age of Respondent	.916	356	.360	.48459	-.5556	1.5248

Since the significance of 0.36 is greater than 0.05, we do not reject the null hypothesis and conclude that the average age is 45 years old. With that said, we recommend that Chef Gaston markets to people around the age of 45, as they are most likely to attend his restaurant. Furthermore, he can do this by offering foods and drinks on his menus that 45 year olds enjoy.

9. *Chef Gaston has tasked the researchers with understanding how the different restaurant features are related to the consumers' likelihood to patronize Chef Gaston's Restaurant? Be sure to provide a clear interpretation of the results, specifically identifying the key restaurant features that are likely to influence consumers' likelihood of patronizing Chef Gaston's Restaurant and more importantly, what do you suggest that Chef Gaston focus on when opening his new restaurant to ensure that more consumers patronize his restaurant. Present your results in an appropriate way.*

Through our research, we found that the most important factors for Chef Gaston's potential customers include restaurants being 30 minutes away, a unique menu and a diverse wine selection. We recommend that Chef Gaston find a location for his restaurant that has the most possible amount of developments within a 30 minute drive. We also recommend that once he finds his location, he focuses his marketing on those who live within the 30 minute radius. We also recommend that Chef Gaston focus on having a unique menu. Since those who are completely likely to patronize his restaurant care less about locally-sourced ingredients, he can use ingredients from all over the world to really make unique meals that customers would not be able to find anywhere else. He could also make a seasonal menu, which would allow for unique menus every season. Another big feature we recommend he focus on is his wine selection. We recommend that he put careful thought into his wine menu, and maybe consider making wine pairing suggestions, as his potential customers rate wine selection as "Completely Important."

We recommend when opening his restaurant that Chef Gaston focus on marketing to the following: females, those in household incomes between "$100,000 to $149,000" and "150,000 +", those who like to watch comedy, those who spend a lot of time on sports and news websites and those with higher education levels. Since females spend more money in his restaurants, we recommend that Chef Gaston focus on marketing to the female clientele. Additionally, those in household income levels between "$100,000 to $149,000" and "150,000 +" are more likely to patronize the restaurant than any other household income level "$99,999 to <$15,000". Likewise, we conclude that customers with a higher household income are more likely to patronize the new restaurant compared to those with lower household incomes. Since those who like to watch comedy are more likely to patronize the restaurant than those who like to watch talk shows, dramas and sports, we recommend that Chef Gaston create funny commercials, or should advertise on networks that show primarily comedy shows. Since those who spend a lot of time on sports and news websites are most likely to find the restaurant appealing compared to those who are on news, shopping and social media websites, we recommend that Chef Gaston place more ads on sports and even some news websites, as these tend to be the groups that find his restaurant most appealing. By marketing to these groups, we are confident that Chef Gaston will see an increase in profit because he will get more people to patronize his restaurant this way. Lastly, we found that those who have a higher level of education, specifically those with Bachelor's, Master's and Doctorate degrees would be more likely to patronize the restaurant, so we feel that Chef Gaston should markets to those groups.

Moreover, we recommend Chef Gaston take the following findings into account when creating pricing and items on his menu: the average spending per month in a restaurant for meals only is $150, the average payment on evening meal entrée is $24.09, the average number of people living in a household is 2.64. Moreover, we recommend he use these numbers to forecast his sales for his business plan, as it is a more accurate representation of his potential customers.

Additionally, we think that he should create options on the menu, such as desserts, that are large enough for about 2-3 people to share, as this is the average amount of people in households coming to eat at his restaurant and will be targeted for the right size people. Furthermore, Chef Gaston should take into account that the average customer is 45 years old. We feel he should market to people close to 45 and should consider offering foods and drinks on his menus that 45 year olds enjoy.

While at the first glance, it may appear that certain factors may be more important than others, it is important to look at the significance to determine if the factors are really important. We feel that Chef Gaston should not focus on gender when it comes to pricing his evening entrees, as the average price for evening entree items has no difference in terms of gender. We recommend that he advertises to both males and females in the same way when it comes to pricing an evening entree item. Similarly, because there is no difference between the average appeal for men and women regarding Chef Gaston's Restaurant, he should not spend time or money on marketing to potential clients based on their gender and should market to genders equally. Additionally, we do not think that Chef Gaston should focus on the TV watching habits of potential consumers, as they do not have a huge influence on the means of attractive decor or Valet Parking. We also feel that he should not look at how many hours per day one spends surfing the Internet when trying to predict appeal, as the results are not statistically different. When looking at customers who would be completely likely to attend Chef Gaston's restaurant, factors such as locally-sourced ingredients, live music, having a famous chef or hiring knowledgeable staff were not viewed as "Completely Important," so we do not believe that these should be his top priorities when opening his restaurant. Overall, we believe that if Chef Gaston follows our recommendations based on our test results, his restaurant will be profitable as many people will patronize his restaurant.